



Environmental Wellness Coping Strategies During Covid-19 Among Australian Families

J Dorasamy¹, R Bhagwan^{2*}

¹Phd Health Sciences, Faculty of Health Sciences, Durban University of Technology

²Faculty of Health Sciences, Durban University of Technology

*Corresponding author: R Bhagwan, Faculty of Health Sciences, Durban University of Technology, Email: bhagwanr@dut.ac.za

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ABSTRACT

The worldwide outbreak of the COVID-19 pandemic affected every part of human lives, including the environment. Though not a welcoming era, it is certain that the 2019 pandemic was not the first of its kind nor is it going to be the last to affect human wellness. The various protocols implemented to mitigate the spread of the pandemic had significant effects on the wellness dimension relating to the environment. This study intended to explore the environmental wellness challenges experienced by some families in Melbourne, Australia, during COVID-19 and the strategies they used as they transitioned through the pandemic. The study outcome indicated that, the pandemic had both positive and negative effects on the environmental wellness of the families in this study. The strategies of the families are worthy of notice, for future approaches to deal with any pandemic. The study framed five possible inductive themes along the environmental wellness situation before COVID-19, overall effect of COVID-19 on environmental wellness, impact of COVID-19 on specific aspects of environmental wellness, pathways to the management of environmental wellness during COVID-19 and critically analyzing recommended changes to environmental wellness by the families in the study. It is expected that the proper implementation of the proposed strategies will significantly contribute toward environmental wellness for individuals and families facing environmental wellness challenges.

Keywords: COVID-19, Environmental, Families, Pandemic, Theme, Wellness

INTRODUCTION

The COVID-19 pandemic caused much disruption, thereby affecting almost every dimension of human existence (OECD 2020a). To minimise the spread of this virus, governments have had to implement strict measures such as social distancing and lockdown. Often, such confinement induced psychological stress, as it impacted individuals and families in varying degrees (UN 2020a; Welsh Government 2020). The Organisation for

Economic Co-operation and Development (OECD) (2020b) also noted that pandemic impacted the vulnerable and marginalised, thus leading to greater stress and anxiety. Additionally, studies have shown that intersecting identity factors such as race; gender; ethnicity; socio-economic factors; physical or intellectual disability; and sex have exacerbated the disproportionality of the impact of COVID-19 (Queral-Basse 2020; OECD 2020a).

Of concern to this study is that the underlying factors such as wellness are often neglected or at times overlooked (Dokov, Milkova and Stamenkov 2020). While wellness refers to the eight dimensions (physical, spiritual, social, emotional, financial, occupational, intellectual, environmental) according to the model of Swarbrick and Yudof (2015), this paper focuses only on environmental wellness. To this end, this paper will endeavour to examine how Australian families reconstructed their environmental wellness, as they transitioned through the current COVID-19 pandemic by making use of Swarbrick and Yudof's (2015) eight wellness dimension model.

Wellness

Wellness may be considered as the active pursuit of lifestyles, choices and activities that leads to holistic health (Global Wellness Institute n. d.). Wellness is achieved through a process of actively making choices that result in optimal health and well-being (Goodman et al. 2018). With regard to well-being, this often refers to the treatment of an illness or curing a sick patient, whereas wellness refers to moving toward optimal health with regard to all the wellness dimensions (Oliver et al. 2019). Wellness is also meant to be holistic and multidimensional in nature such as social, spiritual, environmental, occupational, financial, emotional, intellectual and physical dimensions (Swarbrick and Yudof 2015). Meditating, eating a balanced diet, and regular exercise are some of the approaches to attaining wellness in individuals and families. Before the onset of the COVID-19 pandemic, the demand for wellness programmes among developed nations were on the rise, often associated with structural factors such as non-communicable diseases, aging population and higher income (Kourtit et al. 2021). Hence, the public are beginning to learn that wellness contributes to sustainability in all spheres of life and may enhance wellness across all dimensions (Ali-Knight and Ensor 2017).

From the perspective of family wellness, it is argued that family relationships foster interdependence within relationships, which last over a period of time and are consequential for

wellness across the span of life (Umberson et al. 2015). According to TIS (2022); Thomas and Umberson (2017) and Suito et al. (2017), families are important for the following reasons: Families lay the foundation for future relationships; families are a pillar of strength during challenging times; families provide a source of encouragement and affection; families promote a sense of belonging; and family relationships correlate with mental health. As such, healthy families have better relationships and consequently, enjoy long, healthy and happy lives.

Various segments of family relationships such as couples, single parents, migrants, same sex couples, aborigines and retirees increases the complexities underpinning family relationships, while impacting the dynamics of wellness within families (Lee, Clarkson-Hendrix and Lee 2016). As such, the nature of family relationships may significantly benefit or retard wellness, as relationships provide a sense of purpose, meaning and resources which may influence wellness. For example, the quality of social support provided by families (e.g., care, love) may influence physical and emotional wellness of family members. Additionally, family members may encourage positive affect to enhance environmental wellness. These core components of wellness help to regulate the behaviour of family members, while not compromising coping mechanisms to deal with wellness issues (Suito et al. 2017). Conversely, poor relationships may diminish wellness across the various wellness dimensions. Since wellness is a life-long process, there is a need to continuously manage and sustain wellness.

More specifically, the COVID-19 pandemic affected family wellness in different ways. It affected family cohesiveness; and caused negative moods, loss of employment, stress, and aggressive behaviour among others (Feinberg et al. 2021). Due to the unprecedented nature of the pandemic, families either perished if they could not cope or garnered resources to reconstruct their wellness as they transitioned through the pandemic.

Thus, this paper specifically examined how environmental wellness was affected among

families, and how they reconstructed such wellness as they transitioned through the pandemic. Nurturing such wellness can touch not only the wellness of individuals within the family, but such wellness may also navigate toward others beyond the family context.

Wellness And Covid-19

The wellness of families is imperative, as it constitutes the foundation of communities and plays a crucial role in the wellness of all family members. Thus, ensuring the holistic wellness of families fundamentally affects all spheres in society. However, wellness is a life-long process, involving both positive and negative experiences. At one time, an individual may be healthy and happy about life, but at other times depressed or anxious. During global pandemics like COVID-19, it is likely that wellness among individuals will be affected. Relatedly, research shows that 41% of participants felt burnt out due to grappling with their lives altered by COVID-19, while others felt pressurised by threats to their pay, job security, and benefits (SHRM Covid-19 Research 2020). Additionally, the study by Waite and Creswell (2020) which identified top stressors among families during COVID-19 as work, children, family and friend's well-being, is further evidence of the impact COVID-19 on wellness. More so, the study findings by Etheridge and Spanting (2020); McGinty et al. (2020) and WHO (2020) indicated the negative psychological effects of quarantining and social distancing being associated with stress, loneliness and anxiety.

Due to the variants in the virus, the vaccines do not ensure 100% success rates (Lee 2020). Thus, governments have continued to implement measures such as quarantining, isolation, physical distancing, wearing masks and frequent hand washing. When implemented over prolonged periods, some of these measures can have consequences on wellness (Lee 2020). As such, public health care centres are under pressure to cope with the emergencies of COVID-19 patients, the number one priority worldwide. This calls for some coping mechanisms or models to cushion the hardship, as public health centres cannot always

accommodate the sudden onslaught of unwell people. Therefore, it is vital to explore alternative home-based mechanisms to reconstruct wellness during these periods to complement other government initiatives. Wellness home-based mechanisms that promote resilience in pandemics are limited to date, narrowing the knowledge base on this subject. The current study aimed to help create a more personal response to wellness among Australian families to fill this gap.

Environmental Wellness

Environmental wellness refers to being able to be safe and feel safe in safe and clean environments; accessing clean and healthy water, air and food; preserving the areas where we work, live and learn; occupying stimulating and pleasant environments that support our wellness; promoting learning, relaxation and contemplation in natural spaces and places; and accessing green spaces to engage in natural therapy (Samhsa, 2016; Budds, 2020). In relation to COVID-19, the OECD (2020b) indicated that the pandemic highlighted the imperative for a comprehensive and integrated approach to human wellness. This includes enhancing environmental health through better quality air, water and sanitation; waste management; and safeguarding biodiversity which are important in reducing the vulnerability of communities to pandemics, and thus improving the overall human resilience and wellness (Constable, 2020; Martin, 2020). For example, exposure to indoor air pollution; inadequate access to water, poor quality ventilation; inadequate biodiversity protection, and neglected waste management are key to making individuals more vulnerable during COVID-19 and spreading the pandemic, while compromising environmental wellness (Maipas et al., 2021; Chick et al., 2020; Megahed & Ghoneimb, 2020). Against this background, the WHO presented physical distancing and lockdown as immediate and precautionary steps to control the pandemic, while discouraging crowding in closed environments and prevented meetings in open spaces (Hishan et al., 2020; Salama 2020).

Thus, due to forced isolation and spending more time indoors, better quality air and natural light; enhanced ventilation; use of less poisonous items and natural materials have been become necessary strategies for environmental wellness (Specht et al., 2014; Thomaier et al., 2015). Thus, during COVID-19, green living strategies such as recycling, buying recycled products, checking gas emissions, spending time outdoors, getting rid of clutter at home, and adjusting living spaces which engender joy and happiness were valuable options which not only enhanced environmental wellness, but also impacted other wellness dimensions (WHO).

Environmentalists urged open space walking at the beach and breathing of fresh air as a natural remedy against COVID-19. In line with this, many countries, allowed their citizens to take a walk in the open environment before observing a curfew during the earlier stages of the outbreak. This was a natural phenomenon desired by people to connect with the environment and as a result many countries, including Australians still resist lockdown measures from their authorities (Megahed & Ghoneimb, 2020; Constable, 2020).

The sheer scale of the pandemic placed enormous stress on the built environment of majority of nations, with health care centres being built under emergency conditions; various types of recycled building types emerging; and the use of adaptable frameworks for field hospitals and vaccination sites; (Megahed & Ghoneimb, 2020; Constable, 2020;). As such, during the initial stages of the pandemic, sports facilities, parking lots, and other structures were converted into clinical centres and short-term medical facilities (Megahed & Ghoneimb, 2020). These environmental approaches were important antecedents for wellness.

Apart from changes in the built environment to support the requisite health and wellness needs such as converting open spaces into prefabricated health centres, other approaches included sterilising areas which were either infected or susceptible to infection; cancelling sports, spiritual, political and cultural events to restrict transmission or infection; and suspending activities in the educational and business sectors (Debata et al., 2020). Some of the benefits from

the lock down included clearer skies; lowered carbon discharges and pollution levels; improved water quality; and cleaner breathing air (Debata et al., 2020; Budds 2020). Wright (2020) and Debata et al. (2020) reported that in India there was a 71% reduction in nitrogen dioxide emissions; decreased contamination of rivers; better quality breathing air due to extended networks of smaller sized greening techniques, and improved water quality for bathing and the propagation of wildlife and fisheries during COVID-19. As such, as industries and other economic activities come to a standstill globally, favourable effects on the environment became visible. Ultimately, it is crucial to think of what we can do and have to do in order to sustain good environmental wellness.

A Qualitative Study On Environmental Wellness

According to Swarbrick and Yudof (2015), environmental wellness involves being and feeling physically safe, enjoying safe and clean surroundings, and being able to access clean water, air, and water. It includes both our micro-environment (the places where we live, learn, work) and our macro-environment (our communities, country, and earth). One of the consequences of the adoption of the global lockdown measures to mitigate the spread of the COVID-19 pandemic, was that the home environment became the place where all the daily and routine activities were taking place for many people (Torresin et al., 2021). Given this social change, and the relevance of the environment to wellness, the impact of the pandemic on environmental wellness was explored, to ascertain how families reconstructed their wellness.

METHOD

Sampling strategy used in the study

This study used non-probability sampling, whereby a convenience sampling strategy targeted families referred by a manager, and within the reach of the researcher. In using non-probability sampling, the researcher ensured that the selection of the 12 families was based on typical representivity of Australian families

comprising of Aborigines; single parent families; gay couples; childless couples; straight families; minority and majority groups; retirees; retirees; and opened to all races to ensure diversity and representivity. Furthermore, the 12 families, constituted a single household who interacted with each other in their respective social positions as parents, spouses, children, siblings, grandchildren, or a nuclear family living together as a unit. Since, the population of various types of families was too large to consider and examine, the researcher selected the families who were conveniently available to the researcher based on the referrals (Taherdoost, 2016). The families interviewed in this study were represented as numbers (eg: Family1), according to the order in which the families were interviewed.

Procedure

This study used a qualitative approach (interviews). The interviews were conducted by the researcher either face to face, or through Zoom Video calls. The interviews generated electronic data through voice recordings, which were saved for transcriptions and analysis. This helped to guide against data loss and guarantee quality and trustworthiness. Thereafter, the documents were imported to QSR NVivo 12 software for ease in conducting the analysis. The

software presented the coded data as subthemes for the 5 themes identified from the interview guide, thus grouping the data into manageable themes and subthemes. Efforts were made to ensure that data were objectively compared, bearing in mind the focus of the study. This was in line with the recommendation of Spencer (2011), that “the ‘craft’ of qualitative research requires a balance between inductive forces-allowing the collected data to speak for itself, and deductive forces-structuring, ordering principles derived from theoretical models and concepts”. More so, Saldaña (2021) posited that as a principle, a provisional list of codes should be determined beforehand (deductively) to harmonise with the study’s conceptual framework. Thus, the themes for the study were determined deductively beforehand for purposes of data collection and analysis; while the subthemes were inductively identified.

Analysis Of Sub-Themes Of Themes

The study sampled selected Australian families to investigate environmental wellness during COVID-19 under the following themes: Overall effect of COVID-19 on environmental wellness; impact of COVID-19 on specific aspects of environmental wellness; pathways to the management of environmental wellness during COVID-19; and recommended future changes.

TABLE 1: Themes and their sub-themes used in this paper

Themes	Subthemes
1.Overall effect of COVID-19 on environmental wellness	1. Negative effect of COVID-19 on environmental wellness, 2. Positive effect of COVID-19 on environmental wellness, 3. No effect on environmental wellness
2.Impact of COVID-19 on specific aspects of environmental wellness	1. Time to clean domestic and work spaces, 2. Make use of natural light and fresh air, 3. Discard garbage, cleaning the fridge and pets management, 4. Manage litter and recycling items, 5. Ability to set aside time to enjoy nature
3.Pathways to the management of environmental wellness during COVID-19\	1. Keeping the environment clean and safe, 2. Conservation practice, 3. Gardening, 4. Enjoying natural air
4.Recommended changes to environmental wellness	1. Electricity and water conservation, 2. Walking and outdoor activities, 3. Recycling and reducing the use of plastics, 4. Gardening, 5. Environmental cleanliness practices

Theme 1 Overall effect of COVID-19 on environmental wellness

Stay-at-home protocols transformed homes into places where individuals and families spent most part of the day working, home schooling, taking care of families, cooking, cleaning, and engaging in family activities. However, for most families, the home is not designed for working purposes, and thus may require adjustment to their lifestyle to make such changes. Moreover, employees or employers could not have anticipated the sudden shift to working from home (WFH), and thus the safety of the home working environment is not necessarily been ensured (Bouziri et al., 2020). Given this situation, this theme explored the overall effect of COVID-19 on environmental wellness. From the interviews, it emerged that the pandemic had both negative and positive effects on the environmental wellness of families.

Subtheme 1: Negative effect of COVID-19 on environmental wellness

Part of the negative effect of COVID-19 on the participants' wellness uncovered in this study included:

Paranoid over germs

As documented in the literature, the transmission of the virus mainly occurred through person-to-person via droplets or direct contact produced by sneezing, coughing, and talking (Islam et al., 2020; Wang et al., 2020). The virus infection could result in cardiac injury, acute respiratory distress syndrome, respiratory failure, and even death (Holshue, 2020; Wang et al., 2020). The health implication of the virus may be associated with the reason why participants from family 3 were paranoid and overly cautious over germs.

The family became paranoid over germs and viruses everything we touched at first and then it was wearing a mask and breathing and being too close to anyone (Family 3).

We no longer went on nature trails. But continued to keep our home and work spaces clean. We became extra pedantic about hygiene (Family 11).

Increase in domestic work and costs

Another negative effect of COVID-19 on environmental wellness was additional domestic chores and costs.

With the kids being at home, more time was spent on cleaning, washing and using electricity. Also, we found that the amount of garbage increased. So it meant working out a new routine of responsibilities like clearing the dishwasher, removing indoor garbage, vacuuming and mopping (Family 2).

From the above statement, it was noted family domestic waste increased during the pandemic. While this may be related to all family members working and schooling from home, the risk of increased domestic waste on the environment cannot be underestimated. Rume and Islam (2020) noted that the threat of untreated waste endangers the environment. This may potentially affect the wellness of families, if not properly managed.

Environmental vulnerability

Rume and Islam (2020) noted that measures taken to mitigate the spread of the virus, and diminished economic activities have significant negative effects on the environment. This is also evident in the statement below.

As our homes, hospitals, work, and schools became environmentally vulnerable (Family 6).

Subtheme 2: Positive effect of COVID-19 on environmental wellness

Undoubtedly, the global disruption caused by COVID-19 brought about several effects on the environment. Due to movement restrictions and a significant slowdown in social and economic activities, Rume and Islam (2020) noted that air quality improved in many cities, with a reduction in water pollution in various parts of the world. Consistent with this, is the finding from the interviews that the lockdown promoted an eco-friendly environment.

Promoted eco-friendly environment

Participant from family 7 considered the lockdown as a blessing in disguise, as it led to the

reduction in pollution, thus promoting a greener and eco-friendly environment.

Regarding environmental wellness, COVID-19 was such a blessing in disguise. There was less pollution, and the environment was greener and eco-friendlier (Family 7).

Another participant further corroborated the above view.

There was less noise pollution and less traffic on the roads. The public areas around us remained clean and tidy (Family 8).

Noise reduction may be associated with a reduction in communication and economic activities, as people were under lockdown. This supports Zambrano-Monserrate et al. (2020), who reported that the quarantine and lockdown measures reduced economic activities and communication worldwide, ultimately reducing the noise level in most cities. From a wellness perspective, the reduction of noise pollution is highly significant in the wellness of an individual. For example, Kern et al. (2018) found that noise has negative effects on physiological health, along with hypertension, cardiovascular disorders, and sleep shortness. Additionally, unwanted noise also negatively affects the invertebrates that help to control environmental processes, for purposes of balancing the ecosystem (Solan et al., 2016). This could have contributed to the eco-friendly environment uncovered in this study.

Reduced energy costs

Another significant positive effect of the lockdown measures was energy cost reduction. For instance, avoiding the use of air-conditioning for the use of natural sunlight could be helpful in saving energy and costs. This is particularly important to the environment and wellness. Hayes and Kubes (2018) noted that reducing electricity consumption by 15 percent could prevent six deaths per day, save \$20 billion in annual health costs, and reduce about 30,000 asthma attacks per year.

Continued with eating healthily, drinking water with cucumbers and herbs, maintaining a clean

home and work environment, avoiding using aircon, ensured we had enough natural sunlight (Family 12).

Subtheme 3: No effect on environmental wellness

Some of the participants noted that the pandemic had no effect on their environmental wellness. According to them, they pursued their routine activities as before COVID-19.

We had a routine before COVID-19, so we continued with this (Family 1).

Practising environmental wellness before the pandemic made us realise how important it is..... we continued to do what we did well (Family 4).

We continued with our practices of ensuring that trash is not left lying around, using bags and water bottles which are reusable, loading recyclable items separately for collection; turning off lights and computers when not in use, using the dishwasher and washing machine sparingly; buying fresh produce from the framers market (Family 9).

Theme 2 Impact of COVID-19 on specific aspects of environmental wellness

According to Kumar et al. (2021), COVID-19 has severely affected the environment. For example, the usage of pesticides, detergents, soaps, and single-use plastic increased during the pandemic, and thus took a heavy toll on the environment (Zambrano-Monserrate et al., 2020).

This theme explored the impact of COVID-19 on the specific aspects of environmental wellness of the family structure under five specific areas (time to clean your domestic and work spaces; making use of natural light and fresh air; discarding garbage regularly, cleaning spoiled foods out of the refrigerator, and staying on top of managing your pets; managing litter and recycling items; setting aside time to enjoy nature).

Subtheme 1: Time to clean domestic and work spaces

Research points to the COVID-19 virus being present on various surfaces for a long period of time: plastic (72 h), stainless steel (48 h), copper (4 h), and cardboard (24 h) surfaces (van Doremalen et al., 2020). Hence, it was vital to know the time the participants spent cleaning domestic and work spaces. From the interview transcripts analysed, the following were uncovered:

Maintained regular cleaning

We still maintained regular cleaning. Even though my husband is wheelchair-bound, he helps with basic domestic chores. Sharing such chores helps to keep active, and to reduce the time spent on cleaning (Family 1).

More conscious and sanitise our places regularly (Family 11).

Our helper had more cleaning to do. She did not only clean and tidy the house, but also had to sanitize surfaces and household furniture regularly. As the children were home, they maintained basic cleanliness and hygiene, especially in their bedrooms. We also ensured that garbage and laundry did not accumulate unnecessarily (Family 8).

The above narratives are consistent with Wang et al. (2020), who argued that indoor and outdoor facilities should be kept hygienic and clean; and daily disinfection and cleaning measures should be undertaken. In addition, some of the participants revealed that their families became more vigilant in maintaining household hygiene practices.

Vigilant about cleaning and sanitizing

We had a routine before the pandemic, which we continued with. But became more vigilant about sanitising, using diffusers, and cleaning with alcohol-based detergents (Family 12).

Became extra diligent in cleaning. Sanitiser is used all the time (Family 3).

Particularly, having a clean home to live in and work from was stimulating. This suggests that a

clean environment may enhance productivity and wellness.

We became even more pedantic about cleaning because of the emphasis on sanitation and hygiene to mitigate infection; as well as to have a clean home to work from to make us feel good and stimulated (Family 9)

Furthermore, one could assume that inadequate prevention and control measures adopted inside homes may exacerbate COVID-19 transmission and risks of infections spreading. This concern may have contributed to the increase in time some of the participants spent cleaning their homes and workspaces.

Time to clean domestic and workspaces increased to minimise the possible secondary impact on health and the environment (Family 5).

We had more time to clean, as we were more indoors. We had less laundry to do, but more cleaning of the floors, and bathrooms, sanitising more often and using diffusers (Family 7).

Increasing time for cleaning using roster

One of the families developed a cleaning roster for family members, to ensure each remains compliant with the cleaning schedules.

More time was taken to clean domestic workspaces as we were usually at home. There was more cleaning, more sanitisation practices, and more garbage to dispose of. The roster helped to ensure that each person's duty for the day was noted... avoided excessive/ unreasonable time being wasted on cleaning after long periods of time (Family 6).

Subtheme 2: Ability to make use of natural light and fresh air

Ventilation is one of the most beneficial measures to drastically reduce exposure to infectious diseases (Zhai, 2020). Hence, ventilation during COVID-19 should have been prioritised. Wang et al. (2020) posited that under the prerequisite of thermal comfort, natural ventilation is preferred. It was, therefore, worth knowing if the participants made use of fresh air and natural to keep their environment safe. From their responses, nearly all of the participants

indicated that they opened windows and doors to allow fresh air and natural sunlight into their homes.

Opening of windows and doors

We open our windows and doors to enjoy the sunlight and fresh air (Family 1).

This became important as it assisted in having lots of natural light and fresh air as a form of surviving the COVID virus- opening windows and drawing the blinds daily (Family 3).

The above findings are consistent with the recommendation that windows should be open 2 or more times a day with a duration of 0.5h (Wang et al., 2020), since the use of fresh air and natural light improved wellness. For example, it was noted by family 5 that fresh air and natural light were necessary to improve immunity.

Making use of natural light and fresh air was necessary to improve our immunity. Because of increased exposure to ambient and indoor air pollution, we opened our doors and windows more regularly and for longer periods (Family 5).

Additionally, a participant from family 6 noted natural sunlight as the source of vitamin B and D; and contributed to improved circulation.

Among those who could not access natural sunlight, the opening of the windows was found to be beneficial.

We had little access to natural light or fresh air, as we were occasionally indoors due to lockdown regulations. But opening the doors and windows helped (Family 7).

We reside in a block of flats, so we had little exposure to natural light or fresh air. But opening our doors and windows helped. On warm days, we strolled into the garden in the complex (Family 8).

Sitting outdoor

Not all our homes had enough natural light and fresh air. We sat outside intermittently to get enough fresh, sunlight and vitamin D. Doors and window were left open as long as possible,

sometimes even at night as we avoided using the air con (Family 6).

We ensured that we went outdoors, and opened windows to get enough natural light and fresh air, as it reduces the production of harmful bacteria; increases endorphins and serotonin; increases vitamin B and D; improves circulation, boots your immune system-these are important practices not only for healthy living but also to control the spread of the virus (Family 9).

Avoided using air conditioning

In addition to opening windows, some of the participants indicated that they avoided using air-conditioning. The plausible explanation for this behaviour may be connected to the concern that the air inlet and outlet of air conditioners may be a source of contamination (Wang et al., 2020).

Continued with avoiding the use of the aircon, and kept doors and windows open for longer periods. Strolled in the garden for fresh air and sunlight. Refreshing to be able to appreciate it (Family 12).

Another possible reason for the avoidance of air conditioners was the cost. This is reflected in the statement below.

We avoided using the aircon, because of the costs. We kept windows and doors open during summer. With day light savings in summer, we counted on natural light till late as possible (Family 2).

Walking to shopping centre and relaxing in the garden

Given the benefits of fresh air and natural sunlight, few of the participants noted that they walked to the shopping centre and relaxed in their gardens.

My walks to the shopping centre, and strolls in the garden also helps (Family 1).

The statement below further corroborates this:

This was limited to walking to the shops, sitting outside to enjoy the sun and air, or gardening. No longer went on nature trails (Family 11).

Subtheme 3: Ability to discard garbage, cleaning the fridge and pets management

Another intervention in controlling the spread of the virus is that waste should be classified before disposal; and the frequent disinfection of waste containers should be increased (Wang et al., 2020). More so, given that there are also chances of pets transmitting and or being infected from the virus, the responsibilities associated with pets such as the disruption to routines, and increased concern about meeting the needs of pets may cause stress during the pandemic (Applebaum et al., 2021). Therefore, it was important to know how the family discarded their garbage and managed their pets during this period. Some of the participants noted that there was no interruption to their waste discarding and pets management.

Discarding of waste

This was routinely done before the pandemic. We continued to do so because of the necessity for hygiene and sanitation as a control measure (Family 2).

Continued doing so as before the pandemic—neatness, cleanliness and an inviting, healthy living and work environment are not negotiable (Family 4).

Also, a plausible reason for the lack of interruption in waste discarding and pets management was associated with having no pets and limiting food waste.

There was no particular difference between pre-COVID-19 time and the COVID-19 period as we often did not have spoilt food, nor do we have pets. We maintained regular cleaning routines (Family 8).

We do not cook or buy excessively, so food is rarely wasted (Family 1).

Nevertheless, one of the participants iterated that the panic buying created an increase in wasted food, and thus the imperative to discard waste.

The panic buying resulted in some food waste. Each time we bought groceries, we would stock enough to last for about three to four weeks. Sadly, some of the food lost its freshness or

edibility within two weeks or so, so we were forced to throw it into the bin (Family 7).

Thus, the necessity to discard waste was necessary, as it could be a source of contamination. Additionally, one of the participants noted that there was adequate time available for garbage and pets management due to being on lockdown and WFH.

We had ample time for garbage clearing, cleaning and managing our pets since we were mainly in lockdowns and working from home (Family 6).

Management of waste

Poor waste management may lead to increased sanitation-related illnesses, such as typhoid, cholera, and intestinal worms (Yoada et al., 2014). Given the public health disaster caused by the pandemic, one could easily assume that poor waste management may lead to health challenges for families. Consequently, it was important to know how families managed waste generated during this period. It was found that some daily disposed of indoor garbage in the bins.

Indoor garbage is disposed of daily in the outside bins, which are fetched by the municipality weekly (Family 1).

Refuse removal is undertaken daily into the external bin (Family 12).

Some of the participants noted that regularly disposing of household waste reduced the spread of the virus, which is critical for environmental wellness.

..spraying the home and business premises daily, sanitising, and disposing of garbage were prioritised to ensure that we limited the spread of the virus (Family 3).

Management of pets

While studies by Applebaum et al. (2021) raised a concern that the pandemic may lead to an increase in worry about individuals meeting the needs of their pets, it was, however, revealed from the interviews that some of the participants continued to manage their pets.

We continued with maintaining our pets in a healthy way. During the pandemic, we became more aware that any type of neglect is inviting trouble (Family 12).

One could assume that effective waste and pet management may lead to a cleaner and healthier lifestyle. The statement below also reinforced this.

Discarding garbage regularly, cleaning spoiled foods out of the refrigerator, and staying on top of managing pets made our home healthier, reduced allergies, and support air quality efforts (Family 5).

Subtheme 4: Ability to manage litter and recycling items

While the pandemic created a global emergency, it also raised concerns about waste management practices. Particularly, there have been concerns about the contamination risks associated with solid waste management such as household and medical waste. Pentead and De Castro (2021) noted the risk of increasing the spread of the virus through contaminated household waste. More concerning is that the pandemic has led to many environmental problems. For example, Filho et al. (2020) found that the lockdown led to higher levels of consumption of packaged products, and take-away food. This was corroborated by some of the participants who noted that household litter and disposal items increased during the period due to the family spending more time at home.

Disposing of waste

Many of the participants revealed continuing the practice of disposing household waste as a way of waste management practice.

Litter and recycling items increased and were disposed of more often because we spent more time at home (Family 5).

Litter and other disposal items did increase as we spent more time at home, but accumulation was minimal as we cleaned regularly since we worked from home (Family 6).

Specifically, it was revealed that many of the participants regularly emptied their household

trash, while others daily removed trash from their household. The narratives below reaffirm this.

We empty our trash as before, whenever our kitchen bin is full. We ensure that this is collected regularly (Family 11).

Managing litter didn't seem to be a big issue, as my wife, two daughters and mother regularly cleaned the home. We did accumulate litter as we cleared it as part of a daily routine (Family 7).

Two of the participants noted daily cleaning litter, while another indicated to routinely do the same.

Litter was minimal as we cleared them on a daily basis (Family 12).

Yes- even with more litter and the use of food packaging items, we continued with our daily routine of cleaning bins (Family 4).

COVID-19 reinforced the need for hygiene/cleanliness, part of which is environmental wellness. We routinely clear litter (Family 10).

From the aforementioned narratives, it is clear that there was an increase in household waste that necessitated the need for daily and regular disposal of this waste. From an environmental perspective, such an increase may likely strain the municipal waste management systems (Filho et al., 2021). Hence, the need for recycling becomes necessary. Some of the participants engaged in weekly, while others did daily recycling.

Recycling of waste

Three of the participants indicated weekly recycling of household items, while one did the same on a weekly basis.

...dispose of recyclable items for collection (Family 10).

...recyclable items were sent for collection on a weekly basis (Family 12).

Recyclable items are fetched weekly by a private company (Family 3).

...non-negotiable daily practice (Family 8)

Corroborating with Chen and Lee (2020), it can be argued that the recycling practices of

participants was critical for household waste management; and having a clean and safe environment. This was also supported by some of the participants, who reduced the use of disposable items in an attempt to manage waste and litter.

We always avoid buying food/ drinks packaged in recyclable containers (Family 7).

We are very conscious of minimising litter and using reusable items- we have our own mugs/ water bottles (Family 9).

Apart from recycling, waste segregation is another effective measure for effective waste management. The participants indicated having different waste bins for paper, plastic, and garden refuse. Zhuang et al. (2008) posited that waste separation is an important component of successful recycling management, for purposes of enhancing the quality of recyclables, and optimizing de-incineration. Hence, and agreeing with Chen and Lee (2020), waste separation for recycling is one of the most crucial interventions for sustainable household waste management.

We have different bins outside for paper, plastic and garden refuse (Family 1).

Recyclable items were put into special bins for external collection (Family 6).

...having them separated into different bins for weekly pickup (Family 4).

Degradation practices

Composting benefits the environment by decreasing greenhouse gas emissions and improving the quality of the soil when applied to land; and this is considered as effective waste management (Fadhullah et al., 2020). Participant from family 3 also corroborated this by stating the following:

We throw away the peels from fruit and veg into the garden to support biodegradable practices (Family 3).

Subtheme 5: Ability to set aside time to enjoy nature

According to Hartig et al. (2014), connecting with the natural environment significantly

improved psychological and cognitive outcomes. Thus, it may be argued that setting aside time to spend outdoors is a small investment of time that offers great health benefits. For example, natural air sunlight; and time spent in nature have been reported to enhance positive moods (Pasanen et al., 2018). Given the health benefits of enjoying nature, it was encouraging to note that some families set aside time to enjoy nature during the pandemic. Some of the participants interviewed stated that in their bid to enjoy natural sunlight, they spent time walking and/or gardening.

With COVID -19, visits to the beach and other tourist sites have been limited. But sitting outside, walking in the garden or to the shops, and planting my vegetable and herbs helps to connect with nature (Family 1).

As a family, we enjoyed walks, even though restricted. These became a substitute for going to the beach. The walks provide opportunities to enjoy basic exposure to nature (Family 10).

From the aforementioned narratives, it merged that although many natural tourist sites were restricted, walking and gardening were a means to substitute for this.

This was restricted during lockdown because of the km radius within which we were allowed to move. But living next to a park, and having a large garden in the complex gave us an opportunity to enjoy nature – we sat on the grass, walked around the park, and had time to look at the different birds and trees around- this gave us insights into the rhythms and ways of nature (Family 9).

While for some, COVID-19 disrupted their natural routine, watching documentaries on nature, as well as walking in the garden helped connect them with nature.

My husband is a climate change activist. Before the outbreak of COVID, he would travel out for mountain trails, visit forests, and participate in a river/beach cleaning occasionally. Unfortunately, COVID regulations denied him these opportunities, so he could not enjoy nature as he previously did. We did with less, such as walking in the garden/park and even watching documentaries on nature (Family 2).

During the lockdown, the hikes and retreats stopped. But I continued with my gardening and watching documentaries on nature (Family 4).

Besides gardening and walking, some of the participants found time to relax in their gardens.

We sit in our garden, we have a garden patch which is well maintained. We stopped going on nature trails (Family 11).

We became more aware of nature's value. Sitting in the garden to have tea was refreshing. We also took notice of the natural habitat, like the birds, trees and insects around us. After many years, I plucked fresh plums from the garden and enjoyed it (Family 12).

Consistent with the view that contact with the natural environment significantly improved cognitive and psychologic outcomes; it was evident from the statement below that connecting with nature contributed to enhanced psychological wellness.

Setting time aside to enjoy nature such as sitting under the tree and watching the birds or pets run around can be emotionally and spiritually reinvigorating (Family 5).

Another way some of the participants enjoyed nature was through mowing and pruning, which was considered therapeutic.

We started mowing the lawn and pruning the plants during the lockdown. This helped in saving costs, but was also therapeutic for us as a family (Family 2).

Theme 3 Pathways to the management of environmental wellness during COVID-19

The positive influence of a quality environment on the wellness of an individual can never be underestimated. It was also established that while some of the participants enjoyed nature visits, the restrictions and the shutting down of most tourist sites hampered such enjoyment. More so, the lockdown created a conflicting environment where some of the participants had to work and share spaces with other family members. Hence, it was vital to know how the participants managed their environmental

wellness during the COVID-19 lockdown. From the interviews, the following emerged:

Subtheme 1: Keeping the environment clean and safe

Environmental wellness measures proposed in literature is that indoor and outdoor environments should be kept hygienic and clean (Wang et al., 2020). Consistent with this, many of the participants interviewed reiterated managing and maintaining wellness by keeping the environment clean and safe. Part of the measures taken included disposing of trash and recycling.

We always ensured we disposed of trash and separated recyclable trash for disposal (Family 1).

Regular cleaning. Keeping the home neat. Sorting our garbage into recyclable and non-recyclable bins for collection (Family 2).

We continued with maintaining a healthy home environment; we spent time outside, and we reused items like plastic packets/containers (Family 4).

Continuing with our environmental wellness practices rigidly (ensuring that trash is not left lying around, using bags and water bottles which are reusable, and loading recyclable items separately for collection (Family 9).

Additionally, some of the participants followed daily cleaning routines and sanitising.

Appreciate the garden more, continue with our daily cleaning routines, sanitised, kept the home well ventilated- open doors and windows. Sat in the garden—even working on my laptop (Family 12).

Micro-environmental wellness was managed by cleaning the home and workplace by fumigation and sanitisation. Cleaning hands and general cleanliness were enhanced as family members had time at home (Family 6).

We managed environmental wellness by ensuring the house was clean, and furniture and surroundings were sanitised (Family 7).

Keeping pets clean was also mentioned as a way of maintaining a clean and safe environment .

Collecting trash and disposing of it for weekly collection, cleaning the garden as a family activity, regularly washing dishes by hand, cleaning cupboards/ fridge, washing our hands, and mopping the floors. Keeping our pets clean (Family 5).

Another way some of the participants managed and maintained their environmental wellness was by abiding by the health and safety rules.

Abiding by health & safety at all times wherever we are. Encouraging our friends and family to be more conscious of the environment (Family 3).

Subtheme 2: Conservation practices

Voluntary conservation efforts are necessary for a healthy and sustainable environment (Petersen et al., 2015; Hannibal et al., 2019). Some of the participants managed their environmental wellness through conservation practices such as saving water and electricity. These they achieved by harvesting water using a water tanker.

We have a water tank outside to collect rainwater for garden use. We do not use the hose unnecessarily to avoid wasting water (Family 1).

Opting for fresh air and natural sunlight instead of using air-conditioners to save electricity was another consideration.

We try to get enough sunlight and fresh air by opening our windows. We avoid switching on the aircon often, to also save on electricity. We do not leave lights or our computers on at night, or even during the day when not in use (Family 1).

We also made deliberate efforts to ensure lights in the house were only switched on when necessary. We avoided using the aircon (Family 7).

Further, efforts were also made to sparingly use water when doing laundry or washing dishes.

Turning off lights and computers when not in use, using the dishwasher and washing machine sparingly (Family 9).

Subtheme 3: Gardening

Gardening was considered another way of managing environmental wellness. Two of the participants were involved in vegetable gardens. This may be connected to the fact that natural food helps improve wellness.

I have a small vegetable patch to grow my herbs, tomatoes and chillies (Family 1).

We had a regular supply of fresh veg and herbs from our garden (Family 11).

Subtheme 4: Enjoying natural air

Natural air and sunlight have health benefits. This could also help explain why some of the participants managed their environmental wellness during COVID-19, by intentionally enjoying such health benefits.

I have a walker with a trolley to go shopping, this helps with exercise and getting some fresh air (Family 1).

We became extra conscious of having access to fresh air and sunlight (Family 11).

Enjoying fresh air and natural light (Family 2).

Theme 4 Recommended changes to environmental wellness

Considering the benefits of environmental wellness, some of the participants proposed changes that could help further reconstruct environmental wellness going forward. These were analysed under theme 4 of this section.

Subtheme 1: Electricity and water conservation

The need to conserve water and save electricity was reinforced by some participants who recommending water and electricity conservation as changes to their environmental wellness.

Ensure that all our appliances and light bulbs are energy efficient (Family 1).

Buy a rainwater tank to conserve water for gardening, washing windows etc (Family 11)

Get a water tank to collect rainwater (Family 2).

Water and electricity usage; by learning to recycle and turning off lights and computers when not in use (Family 4).

Practice ways of conserving water/electricity/(Family 5).

Conserve energy by using energy-efficient appliances and light bulbs (Family 9).

Subtheme 2: Walking and outdoor activities

The importance of natural sunlight and air on psychological well-being was noted by many participants. Hence, it was supported by some of the participants reinforcing changes to their environmental wellness. For example, walking and hiking may be considered as ways of enjoying natural air and sunlight.

Start our walks/ hikes again (Family 11).

Spending more time outdoors, even working on therapy on the patio; commuting by biking or walking where necessary (Family 4).

Use the car less often when we can walk to the market/ shops if the weather permits (Family 9).

Subtheme 3: Recycling and reducing the use of plastics

Single-use plastic is not biodegradable, and thus creates serious negative effects on the environment. This concern may have informed the recommendation for recycling plastics as it is commonly used in many households.

Reduce the use of plastic packets and bottles (Family 1).

Avoid using plastic bottles and bags—invest more into reusable items (Family 2).

By using reusable bags and water bottles; being mindful (Family 4). Limit the use of plastic containers/ invest in durable shopping bags for groceries (Family 5).

Subtheme 4: Gardening

Growing one's own food is highly essential, not just for reducing household costs, but also for having a daily supply of fresh and healthy food.

Some of the participants suggested gardening as a change to their environmental wellness.

Starting a vegetable garden (Family 2).

Move into a bigger house, with a garden in which we can grow our herbs and vegetables. Get a dog and a bird for my kids (Family 7).

Prune the trees in the garden. Start a vegetable patch (Family 12).

Subtheme 5: Environmental cleanliness practices

Part of the public health measures recommended for a safe environment during COVID-19 was regular and extensive cleaning; as well as sanitisation. Some of the participants suggested the following changes to their environmental wellness.

Enhance clinical cleanliness and be able to sanitize and fumigate our surroundings as a routine after the pandemic (Family 6).

Get the whole family involved in environmental cleaning such as public spaces, as the exercise helps also with overall wellbeing. It can make us appreciate nature more, and value the benefits of a clean and protected natural environment (Family 8).

Given the importance of a clean environment in the management of the pandemic, some of the participants suggested awareness campaigns to influence a clean environment among the public.

People simply don't abide by the rules of social distancing and keeping the environment clean. Create more awareness among family, friends and our community. Encourage our religious leader to raise this in his weekly sermons (Family 3).

I would do an awareness campaign to influence others (Family 10).

DISCUSSION

In terms of the environmental wellness dimension, COVID-19 created a sense of fear as some became paranoid about cleaning, infection, germs, compromised health, and death. Relatedly, scientific evidence suggests that the

virus could result in severe cases leading to cardiac injury; respiratory failure; acute respiratory distress syndrome; and possible death (Holshue 2020; Wang et al., 2020).

The pandemic also increased the domestic workload for some families, including cleaning; washing; sanitising surfaces and equipment; clearing litter; and disposing of recyclable items. This was attributable to children schooling from home and parents working from home. One of the consequences was increased domestic waste generation, which has implications for environment wellness. Relatedly, Rume and Islam (2020) noted that the burden of untreated waste continuously threatens the environment. As such, this may affect the family's wellness, if not properly managed. This is because the home environment became a place where most of the daily and routine activities were taking place for many people (Torresin et al., 2021). The consequence of this is that it made the homes more environmentally vulnerable.

Nevertheless, it was also uncovered that the pandemic also contributed to an eco-friendly environment as pollution decreased. This supports the claim by Zambrano-Monserrate et al. (2020), that lockdown measures which mandated that people remain at home reduced global communication and economic activities; ultimately reducing the pollution levels in most countries. This could have contributed to the eco-friendly environment uncovered in this study. From a wellness perspective, the reduction of noise pollution is highly significant for the well-being of an individual (Kern et al. 2018).

Nevertheless, some of the participants were restricted in some of the environmental activities engaged in before COVID-19. It does imply that limiting access to natural activities, like hiking, retreats, tourist sites and a visit to the forest may compromise well-being. For example, studies have shown that natural sunlight and time in nature can enhance positive mood (Pasanen et al., 2018). In essence, various factors did mitigate environmental wellness among families.

The cost of energy consumption was also reduced in many households, due to the sparing use of electricity, which was a way of managing environmental wellness during the pandemic.

Reduced energy consumption has a profound effect on saving lives, as argued by Hayes and Kubes (2018) that decreasing electricity consumption by 15 percent may potentially prevent six deaths per day, reduce about 30,000 asthma attacks per year, and save \$20 billion in annual health costs. Further, some of the positive effects on environmental wellness included enjoying nature like sitting in the garden; mowing the lawn; and opening windows and doors to get fresh air and sunlight.

Further, the lockdown forced some of the participants to share work spaces with other family members. This unstructured and uncommon work environment impacted family wellness. As such, there was a heightened need for keeping the environment clean and safe to avoid contamination and the spread of the virus, due to several family members spending long periods indoors. Thus, majority of the participants managed and maintained environmental wellness by keeping the environment safe and clean by regularly disinfecting and cleaning; recycling; wearing masks; observing protocols while coughing and sneezing; and disposing of trash. This concern may have contributed to more time being spent cleaning their homes and workspaces; and abiding by the health and safety rules to maintain and manage their environmental wellness. Additionally, some of the families developed a cleaning roster for the family members to ensure each member complied and was efficient with the cleaning schedules. This is aligned to the argument by Wang et al. (2020), that indoor and outdoor environments should be kept clean and hygienic; and daily cleaning, sanitising and disinfection measures should undertaken regularly. Thus, environmental cleanliness and hygiene practice was recommended as a way of maintaining environmental wellness by many participants.

Additionally, it is important that household pets be properly managed; waste disposed of regularly; and disinfection be undertaken to mitigate against the transmission of the virus (Wang et al. 202). Some of the participants had adequate time available for regular and intentional daily disposal of household waste; and pet management to limit environmental

contamination. This was corroborated by Yoada et al. (2014), who posited that poor waste management situations may lead to a high incidence of contamination-related illnesses.

Equally, the participants practiced good ventilation approaches to limit the spread of the virus by opening their windows and doors to allow fresh air and natural sunlight into their homes. This is commensurate with the effectiveness of ventilation in diminishing the exposure to infectious diseases (Zhai 2020; Wang et al. 2020). The benefits of natural sunlight might have informed the recommendation by some of the participants to spend more time outdoors, while observing lockdown measures, as a means of managing their environmental wellness.

Furthermore, conservation practices such as intentional saving water and electricity was noted. They achieved this by harvesting water using water tanks; sparingly using water when doing laundry or washing dishes; and choosing natural sunlight and fresh air instead of using air-conditioners to save electricity. This may be connected to the assumption that voluntary conservation efforts are necessary for a healthy and sustainable environment (Petersen et al. 2015; Hannibal et al. 2019). Some of the participants reinforced this need by recommending electricity and water conservation as changes to their environmental wellness going forward. Recycling of waste and plastic; gardening; walking and outdoor activities; and using more environmental cleanliness practice were also recommended as a way of conserving the environment.

CONCLUSION

The global world, including Australia, faced an unprecedented crisis caused by the COVID-19 pandemic. Social distancing measures and lockdown measures were introduced to curtail the spread of the virus. However, this is the first time in the modern era that such measures were used to address public health emergencies, which has consequently impacted the lives of many Australian families. The in-depth insights generated from this qualitative study have highlighted how the COVID-19 pandemic

impacted the lives of people within the context of Australian families. Drawing from how families reconstructed their wellness during the pandemic, it was evident that practising water and electricity conservation; keeping home and work spaces clean; observing clean and healthy practices, enjoying fresh air and sunlight; recycling waste; and gardening will help in managing environmental wellness.

This study will not only contribute to the escalating research on the COVID-19 pandemic, by exploring the impact of COVID-19 on family wellness, but it will also contribute to the awareness and understanding of pandemics and their effect on family wellness especially from an environmental wellness perspective. The study will also contribute toward shaping strategies and policies to mitigate the negative effects of the pandemic in relation to environmental wellness and ensure that family wellness is sustained. The study adds value to the body of knowledge on how individuals may manage wellness within the family system; and maintain wellness during crises not only in Australia but in other countries as well.

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